

ABSTRACT

5 A method and apparatus for bit rate allocation,
or statistical multiplexing, in a multi-channel
video data encoder. A pre-processor in each channel
determines a bit rate need prior to compression and
encoding. A control processes the bit rate need in
each channel to arrive at an allocated bit rate for
each channel. The video data is then compressed and
encoded according to the allocated bit rate. The
10 bit rate demand accounts for various characteristics
of the current picture data in each channel,
including spatial activity, temporal activity, image
size, frame rate, scene change, brightness, flash,
fade, and horizontal pixel resolution. The system
15 also biases the bit rate allocation according to
inter-frame distance, whether the average spatial
activity level is below a lower threshold, whether
the inter-frame distance is above an upper threshold
or below a lower threshold, whether the quantization
20 of previous frames is above an upper threshold, the
length of the Group of Pictures (GOP), and a user-
selectable priority factor. The system also
allocates any surplus bit rate among the channels to
avoid having unused bandwidth.